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EXAMINER

TAI, CYRIL

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 06/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/786,238

Applicant(s)

SCHACHT ET AL.

Examiner

Cyril Tai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 and 36 is/are rejected.
- 7) ☒ Claim(s) 34 and 35 is/are objected to.
- 8) ☒ Claim(s) 37-41 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/30/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

For examination purposes, misnumbered claim 39 (second) been renumbered 41.

Election/Restrictions

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-36, drawn to methods for treating a separation facility, classified in class 210, subclass 636.
- II. Claims 37 and 41, drawn to a separation facility, classified in class 210, subclass 322.
- III. Claims 38-40, drawn to a multiple phase treatment composition, classified in class 510, subclass 108.

The inventions are distinct, each from the other because of the following reasons:

3. Inventions I and II are related as process and apparatus for its practice.

The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by

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hand, or **(2) the apparatus as claimed can be used to practice another and materially different process.** (MPEP § 806.05(e)). In this case, the apparatus as claimed can be used to practice another and materially different process (e.g. single phase treatment), where the separation facility can be used to treat a multiple phase flow composition for the separation of a liquid or gas. Because these inventions are independent or distinct for the reasons given above and the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

4. Inventions III and I are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or **(2) the product as claimed can be used in a materially different process of using that product.** See MPEP § 806.05(h). In the instant case, invention III can be used to clean solid surfaces or launder fabrics, where a multiple phase treatment composition comprises air (gaseous phase) and aqueous detergent (liquid phase) according to the limitations of the claim. Because these inventions are independent or distinct for the reasons given above and the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

5. Inventions II and III are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that **(1) the combination as claimed does not require the particulars of the**

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subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the combination does not recite the limitation, regarding the multiple phase treatment composition, "a volumetric ratio of between about 5:1 and about 75,000:1 and provided at a liquid phase flow rate of about 0.1 gal/min. to about 15 gal/min., and wherein the aqueous phase comprises air and the liquid phase comprises an active concentration of at least about 1 wt.%" The subcombination has separate utility such as cleaning solid surfaces or laundering fabrics, where the subcombination comprises air (gaseous phase) and aqueous detergent (liquid phase) according to the limitations of the claim. Because these inventions are independent or distinct for the reasons given above and the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

6. During a telephone conversation with Dennis R. Daley on 5/11/2006 a provisional election was made with traverse to prosecute the invention of group I, claims 1-36. Affirmation of this election must be made by applicant in replying to this Office action. Claims 37-41 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship

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must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Specification

8. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 4, 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

11. Claim 4 claims "a treatment effective amount of at least one of ozone and carbon dioxide". The term "effective" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. For examination purposes, "a treatment effective amount" will be interpreted as "an amount".

12. Claim 32 refers to a method according to claim 22, however claim 22 recites two steps of treating with a multiple phase treatment compositions, therefore it is unclear whether one of both are being referenced.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 1-3, 5-7, 13, 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Tabani et al (US 2002/0112743 A1).

Regarding claim 1, Tabani et al disclose a method for treating a separation facility including a plurality of membranes (see p. 4, para. 46; Fig. 1), the method comprising: (a) providing liquid flow through the plurality of membranes (p. 5, para. 63); (b) treating the plurality of membranes with a multiple phase treatment composition (p. 5, para. 63) comprising a gaseous phase and a liquid phase at a volumetric ratio of the gaseous phase to the liquid phase of at least about 5:1 (p. 4, para. 49); and (c) providing a liquid flow through the plurality of membranes (p. 5, paras. 64, 65).

Regarding claim 2, Tabani et al disclose a method according to claim 1, wherein the multiple phase treatment composition comprises a sufficient amount of liquid phase to wet the plurality of membranes (p. 5, para. 63).

Regarding claim 3, Tabani et al disclose a method according to claim 1, wherein the gaseous phase of the cleaning solution comprises at least one of air and carbon dioxide (p. 5, para. 63).

Regarding claim 5, Tabani et al disclose a method according to claim 1, wherein the volumetric ratio of the gaseous phase to the liquid phase is between about 50:1 and about 6,000:1 (p. 4, para. 49).

Regarding claim 6, Tabani et al disclose a method according to claim 1, wherein the liquid phase flow rate in the multiple phase treatment composition comprises 400-450 ml/min, where 0.1 gal/min = 378.5 ml/min (p. 6, para. 68).

Regarding claim 7, Tabani et al disclose a method according to claim 1, wherein the liquid phase flow rate in the multiple phase treatment composition is 400-450 ml/min, where 15 gal/min = 56781 ml/min, which is less than about 15 gal/min (p. 6, para. 68).

Regarding claim 13, Tabani et al disclose a method according to claim 1, wherein the liquid phase of the multiple phase treatment composition comprises a pH adjusting agent (p. 5, para 58; p. 6, para. 66).

Regarding claim 15, Tabani et al disclose a method according to claim 1 as discussed above, wherein the step (c) of providing a liquid flow through the plurality of membranes comprises diluting the liquid phase of the multiple phase treatment composition to provide a liquid treatment composition (p. 5, paras. 64, 65), and circulating the liquid treatment composition through the plurality of membranes in the separation facility. The liquid treatment composition must inherently be circulating for it to flow through the plurality of membranes.

15. Claims 23, 26, 27, 28, 32 rejected under 35 U.S.C. 102(b) as being anticipated by Husain et al (US 2002/0108906 A1).

Regarding claim 23, Husain et al disclose a method for cleaning a filtration system comprising: (a) removing liquid product from the filtration system and recovering at least a part of the liquid product (p. 13, cl. 38, step (b)); (b) flooding the filtration system with a first aqueous media to remove at least a portion of solids in the filtration system (p. 13, cl. 38, step (a)); (c) flushing the filtration system with a gaseous media to remove at least a portion of the first aqueous media (p. 13, cl. 38, step (i)); (d) treating the filtration system with a multiple phase treatment composition comprising a gaseous phase and a liquid phase (p. 13, cl. 38, step (ii)); (e) flooding the filtration system with a second aqueous media (p. 13, cl. 38, step (iii)); and (f) rinsing the filtration system (p. 13, cl. 38, step (iii)).

Regarding claim 26, Husain et al disclose a method according to claim 23, wherein the filtration system comprises a spiral wound membrane (p. 6, para. 59).

Regarding claim 27, Husain et al disclose a method according to claim 23, wherein the step of removing liquid product comprises displacing the liquid product with water (p. 13, cl. 38, step (a)).

Regarding claim 28, Husain et al disclose a method according to claim 23, wherein the first aqueous media comprises water (p. 13, cl. 38, step (a)).

Regarding claim 32, Husain et al disclose a method according to claim 23 (interpretation of claim 32 discussed above), wherein the step of treating with a multiple phase treatment composition comprises applying the multiple phase treatment composition for at least about 3 minutes (p. 13, cl. 40).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

18. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tabani et al (US 2002/0112743 A1) in view of Zha (US 2001/0047962 A1).

Regarding claim 4, Tabani et al disclose a method according to claim 1 as discussed above, but fails to teach the gaseous phase comprises air and a treatment effective amount of at least one of ozone and carbon dioxide. Zha teaches a method of treating membranes with a multiple phase treatment composition (p. 1, para. 8) comprising a gaseous phase and a liquid phase, where the gaseous phase comprises air or ozone (p. 1, para. 9). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention in view of the teachings of Zha to use an ozone in with air of the

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cleaning composition of Tabani et al in order to have similar effects of chlorine gas and additional features (p. 1, para. 9 of Zha).

19. Claims 8, 10, 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tabani et al (US 2002/0112743 A1).

Regarding claim 8, Tabani et al disclose method according to claim 1 as discussed above, wherein the multiple phase treatment composition is applied to the plurality of membranes in a separation facility comprising an inlet (18) (p. 4, para. 46), but fail to teach the gaseous volume at the inlet is about 10 SCFM to about 1,000 SCFM. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the gaseous volume at the inlet of Tabani et al about 10 SCFM to about 1,000 SCFM because a higher gaseous volume would clean more effectively, conversely too high a gaseous volume would damage the membranes.

Regarding claim 10, Tabani et al disclose method according to claim 1 as discussed above, but fail to teach the plurality of membranes provided within the separation facility exhibit a total membrane area of at least about 200 m². However, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the plurality of membranes provided within the separation facility exhibit a total membrane area of at least about 200 m², because differences in area will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such area is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine

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experimentation.” *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding claim 16, Tabani et al disclose method according to claim 1 as discussed above, but fail to teach the step of: (a) treating the plurality of membranes with a second multiple phase treatment composition comprising a gaseous phase and a liquid phase at a volumetric ratio of the gaseous phase to the liquid phase of at least about 5:1. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to have treated the plurality of membranes with a second multiple phase treatment composition comprising a gaseous phase and a liquid phase at a volumetric ratio of the gaseous phase to the liquid phase of at least about 5:1 because repeating the treating step would result in a cleaner membrane versus performing treating step only once.

Regarding claim 17, Tabani et al disclose method according to claim 16 as discussed above, further teaches the step (a) diluting the gaseous phase of the second multiple phase treatment composition (p. 5, paras. 64, 65) to provide a second liquid composition. However, Tabani et al fail to teach recirculating the second liquid composition through the plurality of membranes. It is well-known that recycling is used to reduce costs by using less liquid and energy used to heat/cool the liquid. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have included the step of recirculating the second liquid composition through the plurality of membranes in the method of Tabani et al to in order to save liquid and reduce costs.

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Regarding claim 18, Tabani et al disclose a method for treating a separation facility including a separation membrane (see p. 4, para. 46; Fig. 1), the method comprising: (a) displacing product from the separation membrane (p. 4, para. 51); (b) treating the separation membrane with a multiple phase treatment composition comprising a gaseous phase and a liquid phase at a volumetric ratio of the gaseous phase to provide the liquid phase on the separation membrane (p. 4, para. 53); (c) diluting the liquid phase on the separation membrane to provide liquid composition (p. 5, para. 64), but fail to teach (d) recirculating the liquid composition in the separation facility. It is well-known that recycling is used to reduce costs by using less liquid and energy used to heat/cool the liquid. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have included the step of recirculating the liquid composition in the separation facility in the method of Tabani et al in order to save liquid and reduce costs.

Regarding claim 19, Tabani et al disclose a method according to claim 18 as discussed above, wherein the step of displacing product comprises introducing a liquid flow into the separation facility for displacing product from the separation membrane (p. 4, para. 51), but fail to teach (d) recirculating the liquid composition in the separation facility. It is well-known that recycling is used to reduce costs by using less liquid and energy used to heat/cool the liquid. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have included the step of recirculating the liquid

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composition in the separation facility in the method of Tabani et al to in order to save liquid and reduce costs.

Regarding claim 20, Tabani et al disclose a method according to claim 18 as discussed above, wherein the step of displacing product comprises introducing a composition comprising gaseous air into the separation facility for displacing product from the separation membrane (p. 4, para. 51), but fail to teach (d) recirculating the liquid composition in the separation facility. It is well-known that recycling is used to reduce costs by using less liquid and energy used to heat/cool the liquid. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have included the step of recirculating the liquid composition in the separation facility in the method of Tabani et al to in order to save liquid and reduce costs.

Regarding claim 21, Tabani et al disclose a method according to claim 20 as discussed above, wherein the gaseous air is provided as part of a multiple phase treatment composition (p. 4, para. 51), but fail to teach (d) recirculating the liquid composition in the separation facility. It is well-known that recycling is used to reduce costs by using less liquid and energy used to heat/cool the liquid. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have included the step of recirculating the liquid composition in the separation facility in the method of Tabani et al to in order to save liquid and reduce costs.

Regarding claim 22, Tabani et al disclose a method for treating membranes comprising: (a) rinsing a membrane with a first liquid rinse

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composition (p. 5, para. 63); (b) treating the membranes with a first multiple phase treatment composition (p. 5, para. 63) comprising a gaseous phase and a liquid phase at a volumetric ratio of the gaseous phase to the liquid phase of at least about 5:1 (p. 4, para. 49); (c) flooding the membrane with water to provide a first liquid treatment composition and recirculating the first liquid treatment composition within the membrane (p. 5, paras. 64, 65); (d) removing the first liquid treatment composition from the membrane (p. 6, para. 65), but fail to teach (e) treating the membrane with a second multiple phase treatment composition comprising a gaseous phase and a liquid phase at a volumetric ratio of the gaseous phase to the liquid phase of at least about 5:1. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to have treated the membrane with a second multiple phase treatment composition comprising a gaseous phase and a liquid phase at a volumetric ratio of the gaseous phase to the liquid phase of at least about 5:1 because repeating the treating step would result in a cleaner membrane versus performing treating step only once.

20. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tabani et al (US 2002/0112743 A1) in view of Kopp et al (US 5,643,455).

Regarding claim 9, Tabani et al disclose a method according to claim 1 as discussed above, but fail to teach the pressure of the multiple phase treatment composition within the treatment facility is below the bubble point for the plurality of membranes according to ASTM F316-03. Kopp et al teach a method of cleaning a hollow fiber membrane by applying a multiple treatment phase

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composition below the bubble point of the membrane (col. 3, lines 27-31). Kopp et al fails to teach the bubble point according to ASTM F316-03, but it would have been obvious to have used ASTM F316-03 because it is a well-known standard for measuring bubble points. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention in view of the teachings of Kopp et al to have the pressure of the multiple phase treatment composition of Tabani et al below the bubble point for the plurality of membranes, according to ASTM F316-03, in order to displace liquid in the fibers of the membranes (col. 3, lines 27-31 of Kopp et al).

21. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tabani et al (US 2002/0112743 A1) in view of Baldridge et al (US 2003/0047510 A1).

Regarding claim 11, Tabani et al disclose a method according to claim 1 as discussed above, but fail to teach the liquid phase of the multiple phase treatment composition comprises an enzyme. Baldridge et al teach a method for reducing biofilm in cross-flow filtration systems, where a liquid treatment composition comprises an enzyme (p. 2, para. 21 of Baldridge et al). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention in view of the teachings of Baldridge et al to have the liquid phase of the multiple phase treatment composition of Tabani et al comprise an enzyme in order to decrease fouling of the membranes (p. 2, para. 21 of Baldridge et al).

Regarding claim 12, Tabani et al disclose a method according to claim 1 as discussed above, but fail to teach the liquid phase of the multiple phase

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treatment composition comprises a surfactant. Baldridge et al teach a method for reducing biofilm in cross-flow filtration systems, where a liquid treatment composition comprises a surfactant (p. 2, para. 21 of Baldridge et al). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention in view of the teachings of Baldridge et al to have the liquid phase of the multiple phase treatment composition of Tabani et al comprise a surfactant in order to decrease fouling of the membranes (p. 2, para. 21 of Baldridge et al).

22. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tabani et al (US 2002/0112743 A1) in view of Cheryan (1986).

Regarding claim 14, Tabani et al disclose a method according to claim 1 as discussed above, but fail to teach the step (a) of providing liquid flow through the plurality of membranes comprises displacing product from the plurality of membranes and rinsing the membranes to remove loose soil. Cheryan teaches providing water through membranes, therefore displacing product from the membranes, and rinsing the membranes until the exit water appears clean, therefore removing loose soil (p. 193 of Cheryan (1986)). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention in view of the teachings of to providing liquid flow through the plurality of membranes comprises displacing product from the plurality of membranes and rinsing the membranes to remove loose soil in order to clean membranes while preventing the membrane from drying out (p. 193 of Cheryan (1986)).

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23. Claims 24, 25 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Husain et al (US 2002/0108906 A1) in view of Cheryan (1986).

Regarding claim 24, Husain et al disclose a method according to claim 23 as discussed above, but fail to teach the liquid product comprises a food product. Cheryan teaches ultrafiltration is an accepted processing operation in the dairy industry, one application being the pre-concentration of milk for cheese manufacture (p. 235 of Cheryan (1986)). It is well-known that these processes foul membranes, thus necessitate cleaning. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention in view of the teachings of Cheryan to have the liquid product of Tabani et al comprise a food product because membranes that filter food products need cleaning to maintain filtration performance.

Regarding claim 25, Husain et al disclose a method according to claim 23 as discussed above, but fail to teach the liquid product comprises a dairy product. Cheryan teaches ultrafiltration is an accepted processing operation in the dairy industry, one application being the pre-concentration of milk for cheese manufacture (p. 235 of Cheryan (1986)). It is well-known that these processes foul membranes, thus necessitate cleaning. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention in view of the teachings of Cheryan to have the liquid product of Tabani et al comprise a dairy product because membranes that filter dairy products need cleaning to maintain filtration performance.

Regarding claim 36, Husain et al disclose a method according to claim 23 as discussed above, but fail to teach the second aqueous media comprises water having a temperature of between about 100°F and about 120°F. It is well-known that chemical reactions double with a 10°C increase in temperature. Cheryan teaches cleaning a membrane system using the hottest water possible that is compatible with the system (p. 194 of Cheryan (1986)). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention in view of the teachings of Cheryan to have the second aqueous media of Tabani et al comprises water having a temperature of between about 100°F and about 120°F because differences in temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

24. Claims 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Husain et al (US 2002/0108906 A1) in view of Tabani et al (US 2002/0112743 A1).

Regarding claim 29, Husain et al disclose a method according to claim 23 as discussed above, but fail to teach the first aqueous media comprises an alkaline solution having a pH of between about 8 and about 13. Tabani et al teach an aqueous media comprises an alkaline solution having a pH of 11.3 to 11.9 (p. 5, para. 58; p. 6, para. 66 of Tabani et al). Therefore, it would have been

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obvious to one of ordinary skill in the art at the time of the invention in view of the teachings of Tabani et al to the first aqueous media of Tabani et al comprises an alkaline solution having a pH of between about 8 and about 13 in order to recover water permeability (p. 5, para. 58; p. 6, para. 66 of Tabani et al).

25. Claims 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Husain et al (US 2002/0108906 A1).

Regarding claim 30, Husain et al disclose a method according to claim 23 as discussed above, but fail to teach the step of flooding the filtration system with a first aqueous media comprises circulating the first aqueous media within the filtration system for at least about 10 minutes. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to have circulating the first aqueous media within the filtration system for at least about 10 minutes in order to allow sufficient time for the first aqueous media to wet the membranes.

Regarding claim 31, Husain et al disclose a method according to claim 23 as discussed above, but fail to teach the step of flushing the filtration system with a gaseous media comprises flushing for less than about 5 minutes. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to have flushing the filtration system with a gaseous media for less than about 5 minutes in order to allow sufficient time for the first aqueous media to wet the membranes.

26. Claims 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Husain et al (US 2002/0108906 A1) in view of Cheryan (1998).

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Regarding claim 33, Husain et al disclose a method according to claim 23 as discussed above, but fail to teach the step of soaking after the step of treating with a multiple phase treatment composition and before the step of flooding the filtration system with a second aqueous media. Cheryan (1998) teaches that the effects of cleaning energies, such as chemical energy, are affected by the time of cleaning (p. 277 of Cheryan (1998)). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention in view of the teachings of Cheryan to have the step of soaking after the step of treating with a multiple phase treatment composition and before the step of flooding the filtration system with a second aqueous media in order for the chemical energy have greater time to clean more effectively, thus maximizing the chemical energy supplied by multiple phase treatment composition before being displaced by second aqueous media (p. 277 of Cheryan (1998)).

Allowable Subject Matter

27. Claims 34, 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cyril Tai whose telephone number is (571) 272-1495. The examiner can normally be reached on Monday-Friday from 9:00AM to 5:30PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker can be reached on (571) 272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Cyril Tai
Examiner
Art Unit 1723

CT
6/8/2006


W. L. WALKER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700